



Prohibition Zone – Groundwater Use Restrictions

Gelman Sciences, Inc. Unit E Aquifer
1,4-Dioxane Groundwater Contamination
Washtenaw County
FACT SHEET – MARCH 2007



This fact sheet, prepared by the Michigan Department of Environmental Quality (DEQ) and Washtenaw County Planning and Environment Department, describes the **groundwater use restrictions in effect for portions of Ann Arbor and Scio and Ann Arbor Townships in Washtenaw County**, and their effect on area residents and businesses. The restricted area, called the **Prohibition Zone** ([PZ Map](#)).

Background

Groundwater in parts of Washtenaw County, including areas in the City of Ann Arbor and Ann Arbor and Scio Townships, is contaminated with the industrial solvent 1,4-dioxane. High doses of 1,4-dioxane have been shown to cause cancer in mice, and long-term exposure to low doses may cause cancer in humans.

Gelman Sciences, now Pall Life Sciences (PLS), used 1,4-dioxane in their manufacturing process. Between 1966 and 1986, wastewater containing 1,4-dioxane was sprayed on its lawns and stored in unlined lagoons. The chemical seeped through soil and rock layers into the groundwater and began to spread; 1,4-dioxane is now found in a deep groundwater aquifer called Unit E. Its physical properties allow 1,4-dioxane to spread rapidly in groundwater.

In order to protect the public, the Washtenaw County Circuit Court issued an order to prevent exposure to groundwater in portions of the City of Ann Arbor and Ann Arbor and Scio Townships. The order prevents use of groundwater that is or may become contaminated with unacceptable levels of 1,4-dioxane by prohibiting certain uses of groundwater in an area called the Prohibition Zone (PZ). The order includes a map identifying the PZ and is available on the DEQ web site ([PZ Order](#)).

What are the specific restrictions in the PZ?

- ◆ Well water from the PZ may not be consumed or used.
- ◆ No wells may be installed for any purpose in the PZ.
- ◆ All private water supply wells within the PZ must be plugged and the property connected to municipal water at the expense of PLS (only a few such wells remain to be plugged, since the area is served by municipal water).
- ◆ Residents, property owners, and PLS must notify the DEQ of any well within the PZ that has not been plugged, whether or not it is currently being used for any purpose.

Are there any exceptions to the restrictions?

Yes. Exceptions include:

- ◆ Groundwater extraction and monitoring wells approved by the DEQ.
- ◆ Dewatering wells for construction or maintenance activities.
- ◆ Wells supplying heat pump systems that either operate in a closed loop system, or operate in a manner to prevent unacceptable exposures to 1,4-dioxane.
- ◆ An existing water supply well that has been shown to draw water from groundwater that is not likely to become contaminated with 1,4-dioxane. These wells will be monitored for 1,4-dioxane by PLS at a frequency determined by the DEQ.
- ◆ Emergency measures necessary to protect public health, safety, welfare, or the environment.

What are my obligations if I own property in the PZ and plan to lease or sell it?

Michigan environmental law¹ requires that persons selling properties with use restrictions related to contamination, disclose pertinent information to prospective purchasers. If your property is within the PZ and you plan to sell or lease your home or business, you are required to disclose the restrictions to a future owner or lessee. In other words, owners of property within the PZ need to inform a future owner or lessee that they would not have the right to unrestricted use of the groundwater beneath the property.

In addition, if you have knowledge or have been notified that the groundwater underneath your property exceeds the generic residential cleanup criterion for 1,4-dioxane of 85 parts per billion (ppb) and you plan to sell or lease your home or business, you must also disclose the general nature

¹ [Section 20116, Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended](#)

and extent of the contamination to a future owner or lessee.

This requirement applies to property within and outside of the PZ wherever groundwater is contaminated with 1,4-dioxane above 85 ppb. PLS is required to clean up the groundwater to residential criteria in the areas outside of the PZ. Other measures are in place in those areas to protect residents from exposure to that contamination. For more information about these areas, see page 3 of the DEQ's [July 2005 Fact Sheet](#) about the PZ, available on the DEQ web site.

*If you are planning construction activities within the Prohibition Zone that may encounter groundwater, contact the DEQ or Washtenaw County staff to determine if groundwater contaminated with 1,4-dioxane is present in that area. **It's important to note that, to date, the shallowest groundwater currently known to be contaminated with 1,4-dioxane in the Prohibition Zone is 40 feet deep, so typical construction activities are not likely to encounter 1,4-dioxane in groundwater. However, as the plume migrates toward the Huron River, the contamination may travel closer to the surface.***

Can the PZ be expanded?

Yes. Investigation and monitoring is being done to ensure the PZ is protective. Based on recent investigation, the DEQ anticipates the boundary of the PZ will be expanded to provide a buffer between Maple Road and Allison Drive, where the plume is in close proximity to the PZ.

What are acceptable levels of 1,4-dioxane?

Acceptable levels of 1,4-dioxane are determined by the way people and the environment may be exposed to contaminated water. The state's generic residential cleanup criterion for drinking water for 1,4-dioxane is 85 ppb. Groundwater must be at or below this level in order to allow for its unrestricted use, including use as drinking water.

What is required of PLS on properties in the PZ?

- ◆ PLS must, at its expense, provide a connection to municipal water to replace any private drinking water wells that are in the PZ or are found to be impacted or threatened by the Unit E Plume.

- ◆ PLS must identify and plug all private wells, including irrigation wells, within the PZ at its expense.
- ◆ PLS must conduct several other response actions, including ongoing monitoring of the Unit E Plume to determine if the PZ needs to be revised. The monitoring will continue for as long as the PZ remains in effect, and additional monitoring wells will be required as the course of the plume is determined.
- ◆ PLS is required to notify all property owners where 1,4-dioxane in groundwater above 85 ppb is located. PLS made such a notification in September 2003 when that requirement went into effect. PLS will need to notify additional property owners as the Unit E Plume migrates.

What is the role of the DEQ?

The DEQ oversees response actions required of PLS. The DEQ's project manager is involved in day-to-day communications with PLS, local governments and citizens. In addition, the project manager works with the DEQ technical and management staff and the Michigan Department of Attorney General to ensure that the required response actions are carried out. The DEQ has asked that the existence of any wells within the PZ be reported to the DEQ. The DEQ will notify Washtenaw County and PLS as soon as it learns of any such wells.

What is the role of Washtenaw County?

The Washtenaw County Department of Planning and Environment is authorized to issue permits for the installation of wells in Washtenaw County. Washtenaw County has been, and will continue, working closely with the DEQ to ensure that these requirements are followed, and that human health and the environment are protected from 1,4-dioxane contamination.

[Additional information sources about the Gelman Sciences Site](#)

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